

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of processing oscillatory response data from a resonant system comprising:

obtaining data measuring an oscillatory response of the system;

estimating~~the variation~~ a variation in natural frequency of a mode of said response;

filtering the data around a selected frequency to obtain a filtered response;

determining a carrier signal whose frequency variation with respect to time is equal in magnitude to said estimated variation in natural frequency; and

modulating~~the amplitude~~ an amplitude of said carrier signal using said filtered response to obtain a modulated carrier signal.

2. (Currently Amended) A method according to claim 1 wherein the frequency of the carrier signal is greater than~~the difference~~ a difference between the highest and lowest values of the natural frequency of said mode over~~the period~~ a period of interest.

3. (Currently Amended) A method according to claim 1 wherein said step of estimating~~the change~~ the variation in natural frequency includes calculating a running average of the instantaneous frequency of the response.

4. (Currently Amended) A method according to claim 1 wherein said step of estimating~~the change~~ the variation in natural frequency includes obtaining time averaged Fourier transforms of the~~measured~~ data measuring the oscillatory response.

5. (Previously Presented) A method according to claim 1 wherein the selected frequency is the natural frequency of the mode in said step of estimating.
6. (Previously Presented) A method according to claim 1 wherein the selected frequency is an engine order frequency.
7. (Previously Presented) A method of analysing a resonant system comprising:
performing the method of claim 1; and
analysing the modulated carrier signal to determine a characteristic of the system.
8. (Original) A method according to claim 7 wherein the step of analysing includes determining characteristics relating to the bandwidth of the mode.
9. (Previously Presented) A method according to claim 7 wherein the step of analysing includes determining a power spectral density function.
10. (Previously Presented) A method according to claim 1 wherein the system is a model system.
11. (Previously Presented) A method according to claim 1 wherein the system is a mechanical system.
12. (Original) A method according to claim 11 wherein the system is a gas turbine engine or a component thereof.

13. (Currently Amended) An apparatus for processing oscillatory response data from a resonant system, the apparatus including:
- a processor which is ~~adapted~~ configured to:
 - receive measurement data relating to an oscillatory response;
 - estimate from the data ~~the variation~~ a variation in natural frequency of a mode of said response;
 - filter the data around a selected frequency to obtain a filtered response;
 - determine a carrier signal whose frequency variation with respect to time is equal in magnitude to said estimated change in natural frequency; and
 - modulate ~~the amplitude~~ an amplitude of said carrier signal using said filtered data.
14. (Currently Amended) An apparatus according to claim 13 further including a sensor for measuring an oscillatory response of the system, wherein said processor is ~~adapted~~ configured to receive said measurement data from the sensor.
15. (Original) An apparatus according to claim 14 wherein the oscillatory system is a mechanical system.
16. (Original) An apparatus according to claim 15 wherein the mechanical system is a gas turbine engine or a component thereof.
17. (Original) An apparatus according to claim 13 wherein the system is a model system, and the processor is part of a computer.

18. (Currently Amended) An apparatus according to claim 13 wherein the frequency of the carrier signal is greater than ~~the difference~~ a difference between the highest and lowest values of the natural frequency of said mode over ~~the period~~ a period of interest.

19. (Canceled)

20. (Canceled)

21. (New) A computer-readable recording medium encoded with a computer program for processing oscillatory response data from a resonant system, the processing including:

- obtaining data measuring an oscillatory response of the system;
- estimating a variation in natural frequency of a mode of said response;
- filtering the data around a selected frequency to obtain a filtered response;
- determining a carrier signal whose frequency variation with respect to time is equal in magnitude to said estimated variation in natural frequency; and
- modulating an amplitude of said carrier signal using said filtered response to obtain a modulated carrier signal.